APPENDIX A

Width is difference between maximum and minimum received during last 3 sec'period FTP.
Offset is minimum received FTP.
FrameSizeMS is constant and equals to frame size in milliseconds (for example in G.723 coded it equals to 30)

/* $MaxFTP_n$ is value of maximum FTP in the statistics */
$MaxFTP_n = Offset_n + Width_n$

/* $DeltaWidth_n$ may be used in estimating $LocalExtremumSize_n$, when burst in width */
If($Width_n > Width_{n-1}$)
    $DeltaWidth_n = Width_n$
Else
    $DeltaWidth_n = 0$

/* $WidthBound_n$ is a temporary bound value used for burst detection */
If($Width_{n-1} = 0$)
    $WidthBound_n = -60$
Else
    $WidthBound_n = 3 * Width_{n-1}$;

/* $Burst_n$ is set to 1, when there is a burst detected in current statistics. It is set to 0 otherwise*/
If(or $Width_n - Width_{n-1} > 200ms$
    or $Width_n > WidthBound_n$
    or (($Offset_n - Offset_{n-1} > 200ms$) and ($MaxFTP_n - MaxFTP_{n-1} > 200ms$))
    or ($Offset_n - Offset_{n-1}$) > $1 * min(Width_n, Width_{n-1})$
)

    $Burst_n = 1$
Else
    $Burst_n = 0$;

/* *BurstLikelihood* reflects likelihood of burst. When it is close to 0, we have low burst liklihood. When it is close to 1, we have high burst likelihood */
If($Burst_n = 1$)
    $BurstLikelihood_n = BurstLikelihood_{n-1} * 0.75 + 0.25$
Else
    $BurstLikelihood_n = BurstLikelihood_{n-1} * 19/20$

/* *Burst2AbsoluteCoef* is jitter buffer adaptation factor. When it is close to 1, jitter buffer size is close to average burst size and reduced slow. When it is close to 0, it is reduced fast. It set to:
    0.5 in not bursty environment
    0.9 when there is a medium burst likelihood
    1.0 when there is a very high burst likelihood */
If($BurstLikelihood_n < 0.3$)
    $Burst2AbsoluteCoef_n = 0.5$
Else If($BurstLikelihood_n < 0.4$)
    $Burst2AbsoluteCoef_n = 0.9$
Else
    $Burst2AbsoluteCoef_n = 1$

/* *DeltaOffset* is a temporary value used in estimation of desired jitter buffer change (*LocalExtremumSize*)*/
If($Offset_n > 0$ and $Offset_n > Offset_{n-1}$ and $Burst_n = 0$)
    $DeltaOffset_n = max(Width_n, Offset_n - Offset_{n-1})$
Else
    $DeltaOffset_n = 0$

/* $LocalExtremumSize_n$ is maximum growth between Width and Offset growthes. */
$LocalExtremumSize_n = max(DeltaWidth_n, DeltaOffset_n)$

/* *DesiredJitterBufferSize* reflects what is expected burst length */
if ($DesiredJitterBufferSize_{n-1} < LocalExtremumSize_n$)
    $DesiredJitterBufferSize_n = DesiredJitterBufferSize_{n-1} * (1 - Burst2AbsoluteCoef_n) + LocalExtremumSize_n * Burst2AbsoluteCoef_n$
Else
    $DesiredJitterBufferSize_n = DesiredJitterBufferSize_{n-1} * Burst2AbsoluteCoef_n + Width_n * (1 - Burst2AbsoluteCoef_n)$

/* *ReduceFactor* tells how fast jitter buffer size should be adjusted to *DesiredJitterBufferSize*.*/
$ReduceFactor_n = max(0, min(BurstLikelihood_n, 0.5) * 2 - 0.1)$

/* *TimeToReduce* tells how much jitter buffer desired to be changed (taking burst into account) */
If($Offset_n > 0$)
    $TimeToReduce_n = Offset_n * (1 - ReduceFactor_n)$
Else
    $TimeToReduce_n = Offset_n$

/* *OffsetOut* is *TimeToReduce* rounded to multiple of *FrameSizeMS*. This value tells how much jitter buffer should be adjusted (relatively to current jitter buffer size). */
$OffsetOut_n = FrameSizeMS * round(TimeToReduce_n / FrameSizeMS)$

/* *AbsolutOut* is *DesiredJitterBufferSize* rounded to multiple of *FrameSizeMS*. It tells absolute size that jitter buffer should be. This value is used when jitter buffer is build from scratch */
$AbsolutOut_n = FrameSizeMS * round(DesiredJitterBufferSize_n / FrameSizeMS)$